B.E. (Electronics & Telecommunication / Electronics & Communication Engineering)
Seventh Semester (C.B.S.)
Elective – I : Data Compression & Encryption

P. Pages : 2

Time : Three Hours

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1035

Max. Marks : 80

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Notes : 1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Diagrams and chemical equations should be given whenever necessary.
11. Illustrate your answers whenever necessary with the help of neat sketches.
12. Use of non programmable calculator is permitted.

1. a) Write down the steps involved in Haffman coding and also write down its merits and demerits. **6**

b) Apply the Shannon – Fano algorithm for the seven source symbols given below with their probabilities $S_0, S_1, S_2, S_3, S_4, S_5, S_6$ with mobabilities 0.25, 0.20, 0.15, 0.15, 0.10, 0.10, 0.05 respectively. Find out the average code word length and entropy of the source. **7**

OR

2. a) Explain the principle of arithmetic coding with the help of suitable example. **7**

b) Decode the sequence $\langle 67 \rangle \langle 70 \rangle \langle 256 \rangle \langle 258 \rangle \langle 259 \rangle \langle 257 \rangle$ by the LZW decoding algorithm. **6**

3. a) Define companding and explain the μ-law compression with example. **8**

b) Explain backward ADPCM with neat block diagram. **6**

OR

4. a) Write a short note on frequency domain coding. **7**

b) Explain MPEG encoder and decoder in detail. **7**

5. a) Give the comparison between JPEG and JPEG – 2000. **6**

b) Write a short note on video compression. **7**

OR

6.	a)	Design 5 – bit reflected gray code.	**6**
	b)	Solve two dimensional image transform with given matrix $[5\ 6\ 7\ 4;\ 6\ 5\ 7\ 5;\ 7\ 7\ 6\ 6;\ 8\ 8\ 8\ 8]$	**7**
7.	a)	Write a short note on steganography.	**6**
	b)	Explain block cipher principle in detail with example.	**7**

OR

8.	a)	Explain Triple DES with two and three keys.	**6**
	b)	Explain the types of attacks in conventional encryption.	**7**
9.	a)	Explain RSA algorithm in detail with example.	**7**
	b)	Explain the principle of public key cryptography and compare with conventional encryption.	**6**

OR

10.	a)	Write a short note on Hash function.	**6**
	b)	Give the general ideas behind digital signature standard scheme.	**7**
11.		Write a short note on the following : i) Intruder ii) Viruses iii) Worms iv) Firewall design.	**14**

OR

12.	a)	Define biometrics & distinguish between two broad categories of the techniques.	**7**
	b)	What are different antivirus techniques explain that.	**7**

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